reached, point more strongly toward lues than towards tuberculosis or any other infection. Dr. McCurdy of Pittsburg believes that most cases of hip disease are syphilitic. While I disagree decidedly with Dr. McCurdy, still, as years go by and judgment ripens and as the laboratory aids get more and more definite, I find that I am getting a much greater proportion of luetic bone and joint diseases than I used to get. I would again call attention to a rather rapid development of joint disease after bone or joint injury, as an evidence of lues. Again the rapid practically symptomless development of secondary lesions, while the primary joint is under observation and treatment, is suggestive of lues. This is well shown in M. W., a boy here presented and who has a positive Wasserman. This boy while in my service at the Children's Hospital for a vertebral osteitis, on a second examination ten days later was found to have two vertebral lesions. Hardly thinking it possible this second lesion could have developed in so short a period, I rather blamed myself for a careless examination and with that idea in my mind went over every joint in a painstaking manner. Within two months the boy developed painlessly destructive osteitis in both hips, both knees and one ankle. Radiograms offered show the changes. At present all joints are apparently normal except the upper primal vertebral lesion and one hip. At present I look upon such a sequence, such a development and course as more than suggestive of syphilis. The development of bone or joint destructive osteitis after severe injuries is suggestive of lues. Tuberculosis in my experience practically never follows upon severe injury of a bone or joint. Such sequence and development suggest lues. Tuberculosis developing after fractures or dislocations is exceedingly rare. Luetic changes, however, are not rare after severe injuries. The matter of differential diagnosis between lues and sarcoma comes up under these circumstances and rarely is tuberculosis to be considered. Seldom does tuberculosis attack the shaft of a bone except by spreading. The matter of diagnosis is very important. Of course a Wasserman should be made. Tuberculin tests except under proper control are not of so much value, especially when positive. Of the various tests, I only place dependence upon the hypodermic injection of T. R. in doses of about 1/10 mg. with very guarded temperature charts. A local reaction accompanying a general reaction under these circumstances is complete evidence. Remember also please that even this does not exclude lues,—the symbiosis is not so rare as we used to think.

The radiograms of some of the children here exhibited are very interesting and show the luetic character of lesions well, especially so as they differ from tuberculosis.

Section on Surgery, December 20, 1910.

Muscle Plastic for Incontinent Sphincter Ani.

By ALFRED NEWMAN, M. D., San Francisco.

One of the most deplorable conditions that can exist in an otherwise healthy individual is the inability to control the bowels. His sphere of action is bounded so to speak by the four walls of the toilet. He cannot work, he cannot play, his entire time is consumed in trying to keep clean. Despite every precaution he is constantly liable to soil himself. He is a burden to himself and a nuisance to those about him. Under such circumstances any procedure that offers even a remote chance of relief is entirely justifiable.

Leaving aside that large class of cases (obstetrical, etc.) in which it is possible and advisable to try to bring together the severed ends of the sphincter, there remain a certain number in which for one reason or another it is necessary to find a substitute for the sphincter ani. Of course as we all know it is impossible to produce a sphincter identical with the normal. So that if a substitute can be provided that will enable the patient to ordinarily control his bowels, to get about and go to work, we may well be satisfied with the result even though the new sphincter does not extend to the examining finger the firm grip that the normal sphincter does.

The first to make a successful artificial sphincter, as far as I have been able to discover, was Chetwood* in 1902, in a case where repeated operations had failed to cure a ruptured sphincter; his procedure was as follows: Semi-lunar incision from one tuberischii to the other reaching slightly above the tip of the coccyx. The flap is dissected down exposing the edge of the gluteus maximus muscle on either side. A ribbon of muscle a quarter of an inch wide and one-sixteenth of an inch thick is then dissected from the gluteus of each side having the attachment above at the coccyx. The perianal tissue is then tunneled and the strips crossing each other beneath the coccygeal-anal ligament are brought around the anus. The strips are then attached to the remains of the sphincter and to each other. The skin flap is then sutured back into place. Marvelous to relate this operation was a complete success and after a year Chetwood's patient was able to control his bowels under all conditions. Despite the most painstaking search the only other mention of this operation that I have been able to discover is in Tuttle's work on "Diseases of the Rectum." He reports five cases. in three of which the results were good, the other two were failures. This lack of mention leads me to believe that the operation is comparatively little known and for this reason I think it well worth while to once again bring it to the notice of the profession. Before proceeding to the narration of the present case I must state that the operation did not entirely appeal to me as it took no account of nerve or blood supply and the strips of muscle seemed far too slender. However, as the operation had been successful before I determined to try it. After having done the operation I learned of Shoemaker's[1] operation published in April, 1909, in which he preserves the nerve and blood supply of the gluteal flaps which are made more than one and a half inches wide, thus correcting the faults which attached to the original Chetwood operation.

This operation is as follows: Vertical incision beginning two fingers' breadth from the tip of the coccyx carried vertically downward for ten centimeters. Then obliquing downward and outward to a hand breadth below the base of the great trochanter. The skin flap so formed is dissected up. Two flaps, one for each gluteus maximus, are then dissected off, taking care to preserve the nerve supply which enters the muscle about midway between the tip of the coccyx and its insertion into the gluteal ridge on the femur. The flaps are from three to four centimeters wide, they are severed near their insertions and freed up to the entrance of the nerve. The tissue anterior and posterior to the anus is then tunneled and the flaps drawn through and sutured to the tuber ischii of the opposite side, to each other and to the remains of the sphincter, if there be any. The woman on whom this operation was performed had been operated on several times for prolapse of the rectum, with the result that the prolapse was cured but the sphincter destroyed. After operation she was able to retain an injection of glycerin. A perfect, even marvelous result.

Patient, E. L., age 23. Family history good, worthy of note in previous history are three attacks of gonorrhea during the last of which he developed an ischio-rectal abscess which after a week's duration was opened in another hospital. This was in April of the present year. Resulting fistula was operated on three weeks later. After a few weeks' treatment the patient was transferred to the City and County Hospital on May 26th. Report on admission notes absolute incontinence of feces and purulent discharge from rectum. Patient remained with practically no treatment until he came under my care in the early part of August. Examination at that time showed a widely gaping anal opening

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*Med. Record, Apr. 5, 1902.

(1) Shoemaker. Plastik for Incontinence. Method of Reconstructing Sphincter. Semaine Medical. April 7th, 1909, XXIX.

with a profuse muco purulent discharge. Examination under ether, the parts being exquisitely tender, failed to show any remains of the fistula. Local treatment was then instituted, this lessened but did not cure the discharge; so that under the impression that the dribbling of the feces might still be maintaining the proctitis and also to relieve the sufferer of the intolerable incontinence, operation was determined on. The reason that impelled the use of a muscle plastic rather than direct union of the severed sphincter was the fear of infection,—the incision being well away from the anus and easily kept clean in Chetwood's operation.

Operation, August 8, 1910, kindly assisted by Dr. Zobel. Anesthetic chloroform, at patient's request. Patient lying on stomach with legs hanging over edge of table and spread well apart. Operation as described by Chetwood except that the muscle strips were made the thickness of a thumb and a heavy chromic ligature about the rectum tied over the assistant's finger, whose object was to support muscle strips during healing. The patient lay on his stomach for the first week, had bowels moved in same position and had to be catheterized the first ten days. Was discharged September 8th with wound well healed and rectal condition very much improved.

The patient is now working and can control the bowels very well but there is still some slight discharge. His artificial sphincter keeps his anus closed, a living ligature as it were round the lower opening of his bowel that contracts at will. As was to be expected true sphincteric tone is absent, the finger entering the sphincter with very little resistance. However, since leaving the hospital the patient has never had to wear a pad nor has he ever soiled himself although his movements are always semi-solid; even after taking a saline cathartic he has been able to hold his bowels until he reaches the toilet, so that under the circumstances the result, if not perfect, may be designated as very satisfactory.

Discussion.—A. J. Zobel: I had the pleasure and opportunity of being present when this operation was performed. From the result that has been obtained I think Dr. Newman deserves both praise and congratulation. While it is true that his patient has yet a partial incontinence, still he has been made so much more comfortable than he was at first that it may be considered practically a cure.

From observing this operation and studying it over, I have concluded that in the future it would be advisable to do as Dr. Newman suggests, that is, to use a broader and thicker segment of the gluteus maximus muscle, thereby preserving both the blood and nerve supply and so securing better muscle action.

I believe this is necessary because the transplanted muscle does not take up a true sphincteric action, but acts more as a cut-off muscle. It is in a state of relaxation until when contracted by the will it presses upon and occludes the anal canal.

This action of the muscle may be well illustrated even in normal individuals when they strongly contract both glutei and bring the buttocks closely together. The muscles here seem to reinforce the external sphincter muscle and help restrain the expulsion of the fecal contents of the rectum when that organ is under stress of an over-stimulated musculature. Therefore the larger the segment used the stronger its action as a cut-off muscle.

I think it well to remember that incontinence might be due not only to the loss of continuity of the sphincter muscles and the presence of an excess of scar tissue, but that it may also be the result of spinal or nerve disease. When due to the latter condition there is anesthesia and analgesia of the anal canal. This allows a fecal movement to come down the canal without being felt. Here I can understand how an operation would be futile, for it is only in those patients who feel the desire to empty the rectum and can bring the glutei maximi into play in time, by the exercise of the will, who can be benefited.

Therefore a careful study of the causation in all cases of fecal incontinence is necessary. A case in point is a man who came to my rectal service in the San Francisco Polyclinic shortly before the fire of 1906. His complaint was fecal incontinence, and otherwise he appeared perfectly well and normal in all respects. Examination disclosed a peculiar thinning of the external sphincter, and I was at a loss for a diagnosis of the cause. The fire destroyed the Clinic, and he disappeared from my observation. About eight months or so later I saw him walking on the street. He had the unmistakable characteristic gait of the sufferer from locomotor ataxia. Then the diagnosis was made for me, and since then I have never failed to remember that fecal incontinence may be one of the earliest symptoms of locomotor ataxia.

In regard to the prophylaxis of incontinence, I believe that much of this condition following fistula operations could be avoided if more care would be taken by the surgeon in divulsing the anal canal. When roughly and hurriedly done there is much bruising and laceration of the parts with considerable effusion of blood into the tissues, and as a result primary union of the excised wound fails.

When spinal anesthesia is used the anal canal becomes patulous and soft of its own accord and one can work in it almost without needing to divulse it at all, and primary union after excision of the fistula is more frequently secured.

Emmet Rixford: In view of the history of the many inffectual attempts to devise an operation which will give the patient with anal incontinence real control of his discharge, this operation described by Dr. Newman is most interesting—and the person here exhibited certainly has contractile power of the anus when, it seems, he had not before the operation. I am not altogether convinced, however, that the contraction present is not produced by the sphincter muscle, for confessedly there was but a single incision in the muscle as the cause of the incontinence. I would like to ask Dr. Newman how he determines that he transplanted strips of the gluteus muscle actually contract for it seems unlikely that such long and thin strips of muscle would preserve their contractile power when there is no certainty that their nerve supply was preserved. Is the contraction tonic or are the patient's bowels continent only when he voluntarily contracts the gluteus maximus muscle? To be sure when the man attempts to contract the anus on the examining finger he simultaneously contracts both gluteus muscles, but this may be coincidental or the result of suggestion. Can he by his will contract the anus independently of the gluteus muscles? I do not know that the gluteus maximus muscle is one of those muscles like the common flexor of the forearm over which the possessor has volitional differentiation as to the contraction of its different parts. The best test of this operation would be in cases of complete paralysis of the sphincter muscle or after complete excision of the same as is occasionally done for carcinoma.

To return to the sphincter muscle proper, I would call attention to the fact that with a comparatively small part of the muscle active, i. e. having a good nerve supply and not too much cicatricial tissue about it, excellent control can be obtained.

Harry M. Sherman: When Dr. Brunn told us that this patient had been at the University Hospital I was very much interested to know whether he had come under my service or that of Dr. Huntington. Dr. Brunn's very frank and honest statement exculpates me. I do not understand myself, why Dr. Newman did the operation which he describes. A long while ago when Mr. Ball of Dublin was here, I had in my care a little girl whose rectum opened into the vagina just below the cervix, and I was wondering whether it was possible to make for that little girl a sphincter out of strips of muscle

from the glutii after moving the anus to its normal site, and Mr. Ball persuaded me not to do it. I should think that would be exactly the same case in this instance where the narrow strips of gluteus muscle were used, and with the broader strips the problem would be only more complex, for in each instance the transplanted muscle must become indifferent tissue without doubt. The questions which Dr. Rixford has asked are naturally the ones that would come to any one's mind, as to what part of the nervous system was controlling this new sphincter, if it could become a competent tissue. With a sphincter which is to a certain extent competent, extending around the greater part of the anal opening, there should in time come to be a certain control and if infection is not present, it should be possible to repair the sphincter so as to make a complete circular muscle under ordinary circumstances. I am saying this in spite of the fact that I have in my wards now a man in whom I am probably failing to accomplish this, but in the general run of cases this should be a possible thing to do. The statement of Dr. Zobel that in cases of spinal anesthesia manipulation of the anal canal is possible without dilatation of the sphincter is new to me. I have dissected out a number of fistulae and made immediate suture closing the whole of the fistulous tract and getting primary union all the way through from the mucous surface to the base of the fistula, including the muscle, with a good deal of satisfaction. This has always been done under general anesthesia and after a careful, pretty complete stretching of the sphincter. It would be flying in the face of Nature to suture a sphincter without having rendered it paretic by overstretching, it would be inviting spasmodic action which is what we wish to avoid for a few days. I should like to see Dr. Zobel do that some time, because the method would be attractive if it could be done, but I am inclined to be a little bit skeptical about it. The plan which Dr. Newman has described this evening is tempting also to me, for this little girl whom I spoke of has since been subjected to an operation by me and the anus put into its proper place so that she has rectum opening in the integument behind the vaginal opening; she has not, however, a sphincter and has to be very careful about attention to herself and wear a napkin, and when she finds a movement is coming she has to go to the toilet without delay; her condition has been made more tolerable by a pretty firm circle of cicatricial tissue which has always a tendency to contract and has to be kept dilated, and this she does herself with a little rubber bougie.

Samuel J. Hunkin: While I know nothing about the exact subject of the paper, still the discussion has been exceedingly interesting to me, and if it is permitted, would like to speak regarding some points in which I am at variance with two of the speakers. I do not at all agree with Dr. Sherman that the mere suturing of a muscle is likely to provoke spasm in the muscle, if the muscle was not previously paralyzed. I cut and suture muscles rather frequently and spasm is not provoked afterwards if rest is maintained, and I think the trouble in this special area is not the suturing of the muscle, but the failure later to secure rest. Dr. Rixford objects to the procedure on the ground that the band of gluteus would only contract when the man attempted to move his hip, that is, the man in order to "shut his rectum off," would have to think "outwards rotation of the hip." I am inclined to think from my experience with other muscles, that the muscles will learn to contract when its need is felt, and if it goes around the rectum in two ways as I understand it does, it will single out its function and control the bowels better and better as time goes. Of course Dr. Rixford may have to single out his muscles as he wills and moves and even call each by name, but the most of us do not have to do this, but we will the effect and the muscles do the rest.

Alfred Newman: Gentlemen, I feel highly flattered. If I had no other justification for the operation, the discussion that I have provoked would fully justify it. As I said in my paper, my justification for the operation was the infection. I said at the time that it was a case that ordinarily could have been easily treated by dissecting out the scar and bringing the ends of the sphincter together; and that in the after treatment, in order to avoid infection, I kept the patient on his face so that the pus would not run over the wound. If I had not done this operation I would simply have gotten another huge ischio rectal abscess and after that would have had the proper amount of justification to suit everybody. Referring to Dr. Rixford's questions, in regard to the function of this muscle I said at the time "Marvelous to relate the operation was a success." I had the same misgivings that Dr. Rixford expresses and I said one of my excuses for bringing it forward was the fact that the operation was comparatively unknown and that I performed the operation only because it had succeeded before. I realized that the chances were more than even that it would be a failure and I think I brought it out in my paper. As to whether the artificial sphincter functionates by itself, along with the rest of the gluteus muscle or whether the sphincteric action is due to the contracting gluteus pulling on the muscle strips, which have been reduced to the consistency of fibrous cords, the chances in general would seem to favor the latter possibility. Yet it is possible that nerve filaments that run to the coccygeal insertion of the gluteus maximus, I have frequently seen such in the course of my dissection of this region,—may suffice to enervate the muscle strips. They appear to have done so in the present case. How do I know that it is not the sphincter that is doing all the contracting? In the first place whenever the patient narrows his anal orifice you can see the inner edges of the glutei contract; in the second place, you can feel the muscle strips contract on either side and this without the synchronous contraction of the rest of the gluteus maximus; and thirdly, in a case of my knowledge a one-sided operation was done, with the object of bridging over the hiatus in the sphincter with a muscle flap without success. Of course there is a good piece of the sphincter remaining and this helps along. It is observed that the anal canal is very long; this is due to the fact that I put this artificial sphincter proximal to the external sphincter; this has lengthened the canal. When the canal is once dilated, the patient evidently has little power of contraction. I also stated that I did not get a true sphincter here. I got what I tried to get,—a good functional result.

SOCIETY REPORTS

ALAMEDA COUNTY.

The annual meeting of the Alameda County Medical Association was held Tuesday evening, December 20, 1911. The program was as follows:

1—Immunity, and How Nature Cures Disease, by Dr. S. H. Buteau.

2—Reports of the Out-Going Officers.

3—Report of the Result of the Election by the Tellers.

4—Induction into Office of the Incoming Officers.

5—Refreshment and a Social Hour.

Dr. Buteau's paper was discussed by Drs. Briggs, Emerson, Rowell, Clow, Archibald and Dukes.

The reports of the out-going officers showed that the Society had made constant progress throughout the year just ended.

Officers elected: Dr. A. S. Kelly, president; Dr. W. A. Clark, vice-president; Dr. Dudley Smith, treasurer; Dr. Pauline S. Nusbaumer, secretary;